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Knowledge, attitudes and behaviors about dental health among undergraduate medical students in a tertiary care institution in Nagpur city, India

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ABSTRACT

Background: Dental health is a reflection of general well-being of a person and is thus an inseparable component of the health profile of an individual. Accordingly, a basic understanding about dental health should constitute a crucial component of the medical training. **Purpose:** To evaluate the awareness towards oral health among students of a medical college in Nagpur, India. **Subject and Methods:** A cross sectional survey was organized to assess the awareness about oral health among students of a medical college in Nagpur in November 2020 for duration of one month using a validated self-administered questionnaire. **Results:** There was a significant difference observed between students of various academic years for knowledge ($p \leq 0.001$) and behavior ($p \leq 0.001$). **Conclusions:** Oral health knowledge of higher academic years was significantly better than first year students. Significantly high proportion of first year students were having positive attitude towards oral health than other academic years.

Keywords: Curriculum, medical education, dental health, survey

1. INTRODUCTION

Dental health is a mirror to the general wellbeing of an individual. Thus, the link between dental health and general health is well established. Dental caries, Periodontal diseases and oral cancers are considered as major public health problems of the concern (Smyth et al., 2007 and WHO, 2011). The health behavior of an individual is largely affected by his or her oral health behavior. Domains like knowledge, attitudes, and practices that an individual adopt would influence his or her level of oral health (Sharda and Shetty, 2008). The knowledge of oral health is essential for any health professional as most of the systemic diseases have their initial reflection in the mouth. Dentistry, existing as a separate branch of health sciences indicates the significance of

oral health. However, other health sciences have restricted knowledge about oral diseases and measures to prevent them. Thus, there is very little evidence available in the literature regarding whether medical students during their course of study are emphasized about various aspects of oral hygiene practices (Kumar et al., 2010; Chattopadhyay, 1990).

Health professional's especially medical professionals are the first line of contact in primary health care approach in India. It is assumed that medical professionals have adequate knowledge of oral health. In addition, they are also been assigned the responsibility of promoting oral health in primary health care due to limited availability of qualified dental manpower. However, sometimes it becomes challenging for them to appropriately refer people with dental ailments⁶. Studies have revealed that there is lack of oral health competency among medical professionals (Sharda and Shetty, 2008; Berg, 2006). It is therefore necessary that they should have adequate understanding of dental health and should exhibit positive dental behavior. Therefore, the present cross sectional survey was initiated with an aim to evaluate the knowledge, attitude and behavior of students about oral health studying in a medical college of Nagpur, Maharashtra.

2. SUBJECTS AND METHODS

A cross sectional survey was conducted among the students of a medical college in Nagpur city in November 2020 for duration of one month to assess their knowledge, attitudes and practices towards oral health. Ethical clearance from institutional ethical committee was obtained prior to the study (IEC/VSPMDCRC/86/2020). Permission from medical college and consent from participants were obtained prior to the survey. All those students who were present in the institution on the days of survey were invited to participate. Those who have not given their consent for participating in the study and those who remain absent on the day of survey were excluded.

The participants were administered with a prevalidated self-administered closed ended questionnaire containing 19 items related to dental health. There were ten items related to knowledge, two items related to attitude and seven items related to behavior in the questionnaire. A convenient sample of 320 participants, constituted the final sample size out of which 252 students submitted the duly filled questionnaire according a response rate of 78.75%. Among the participants, 48 were in first session, 53 were in second session, 51 were in third session, 43 were in final session and 57 were Junior Residents. Responses to the closed ended questions with multiple options were dichotomized as 'correct' and 'incorrect' for knowledge and 'positive' and 'negative' for attitude and behavior. Responses to the questions for knowledge were categorized under 'poor', 'average' and 'good' categories. Responses to the questions for attitude and behavior were categorized under 'poor' and 'good'."

Criteria for categorizing participants for knowledge are as

'Poor knowledge' — correct answering up to one third questions.

'Average knowledge' — correct answering to more than one third and up to two third questions.

'Good knowledge' — correct answering to more than two third questions.

Criteria for categorizing participants for attitude and behavior is as

'Poor attitude or behavior' - Correct answering to less than half questions.

'Good attitude or behavior' - Correct answering up to or more than half questions.

Data analysis

Data analysis was done using SPSS version 17.0. The difference between distribution of knowledge, attitude and behavior among individuals in different academic sessions was measured using Chi square test. A $p \leq 0.001$ was considered statistically significant.

3. RESULTS

The total sample size for the present cross sectional survey was 320 with 252 participants submitting the duly filled questionnaires. Thus, the response rate standing at 78.75%, who included both girls and boys. Table 1 reveals the distribution of the participants according to gender with males predominating the females.

Table 1 Distribution of participants according to gender and academic year

		Number	Percentage
Gender	Male	133	52.78
	Female	119	47.22
Academic year	First year	48	19.05
	Second year	53	21.03
	Third year	51	20.24
	Final year	43	17.06
	Internship	57	22.62

In the Table 2, the responses to questions on knowledge were assessed. Most of the students (83.7%) answered correctly to "Number of permanent teeth do we have?" while least number of students (50.4%) answered correctly to "The interval of changing the toothbrush? Table 3 reveals that most of the individuals (88.1%) were having positive attitude for "Gutkha chewing / Tobacco smoking as a bad habit. Majority of students (76.6%) were having positive behavior for "The change of toothbrush as and when need arises?", while least number of students (24.2%) responded positively for "Any driving force that drives you to visit a dentist?".

Table 2 Distribution of the study subjects based on responses to questions on 'Knowledge'

Sl. No	Scenario	Response	1 st Year (%)	2 nd Year (%)	3 rd Year (%)	4 th Year (%)	Internship	Total
1.	How many permanent teeth do we have?	Correct	27 (56.3)	47 (88.7)	48 (94.1)	38 (88.4)	51 (89.5)	21 (83.7)
		Incorrect	21 (43.8)	6 (11.3)	3 (5.9)	5 (11.6)	6 (10.5)	41 (16.3)
2.	What is the purpose of tooth brushing?	Correct	27 (56.2)	36 (67.9)	26 (51.0)	26 (60.5)	40 (70.2)	155 (61.5)
		Incorrect	12 (43.8)	17 (32.1)	25 (49.0)	17 (39.5)	17 (29.8)	97 (38.5)
3.	What should be the interval of changing the tooth brush?	Correct	19 (39.6)	31 (58.4)	20 (56.9)	20 (46.5)	28 (49.1)	127 (50.4)
		Incorrect	35 (60.4)	22 (41.6)	22 (43.1)	23 (53.5)	29 (50.9)	114 (40.6)
4.	What does dental plaque lead to?	Correct	28 (58.3)	33 (62.3)	25 (49.0)	28 (65.1)	36 (63.2)	150 (59.5)
		Incorrect	20 (41.7)	20 (37.7)	26 (51.0)	15 (34.9)	21 (36.8)	102 (40.5)
5.	What are the reasons for bleeding gums?	Correct	18 (37.5)	32 (60.4)	33 (64.7)	23 (53.5)	42 (73.7)	148 (58.7)
		Incorrect	30 (62.5)	21 (39.6)	18 (35.3)	20 (46.5)	15 (26.3)	104 (41.3)
6.	What are the methods to prevent bleeding?	Correct	26 (54.2)	30 (56.6)	26 (51.0)	29 (64.4)	41 (71.9)	152 (60.3)
		Incorrect	22 (45.8)	24 (43.4)	25 (49.0)	14 (35.6)	16 (28.1)	100 (39.7)

Figures in parentheses are percentages

Table 3 Distribution of the subjects based on responses to questions on Attitude and Behaviour

Sl. No	Question	Response	1 st Year (%)	2 nd Year (%)	3 rd Year (%)	4 th Year (%)	Internship (%)	Total (%)
Attitude								
1.	Gutkha Chewing is a bad habit	Positive	41 (85.4)	45 (84.9)	47(92.2)	34(79.1)	55 (96.5)	222 (88.1)
		Negative	7 (14.6)	81 (5.1)	4 (7.8)	9 (20.9)	2 (3.5)	30 (11.9)
2.	Treatment of toothache is as important as any other organ in body?	Positive	32 (66.7)	42(79.2)	41 (80.4)	28 (65.1)	44(77.2)	18(74.2)
		Negative	16 (33.3)	11(20.8)	10(19.6)	15(34.9)	13(22.8)	65(25.8)
Behaviour								
1.	Does you brush your teeth more than once more than once in a day?	Positive	27 (56.2)	22 (41.5)	15 (29.4)	8 (18.6)	29 (50.9)	101 (40.1)
		Negative	21 (43.8)	31(58.5)	36(70.6)	35(81.4)	28 (49.1)	151 (59.9)
2.	Do You use fluoridated Toothpaste?	Positive	35 (72.9)	34 (45.3)	26 (51.0)	13 9(30.2)	24 (42.1)	122 (48.4)
		Negative	13 (27.1%)	29 (54.7)	25(49.0)	30(69.8)	33 (57.9)	120 (51.6)
3.	Do you change your tooth brush as and when need arises?	Positive	40 9 (83.3)	42 (79.2)	43 (84.3)	24 (55.8)	44 (77.2)	193 9 (76.6)
		Negative	8 (6.7)	11(20.8)	8 (15.7)	19 (44.2)	13 (22.8)	59 (23.4)
4.	Do you use supplementary Oral hygiene aids?	Positive	30 (62.5)	32 (61.3)	2 (3.9)	1 (2.3)	8 (14.0)	26 (10.3)
		Negative	18 (37.5)	26 9(49.1)	49 (96.1)	42 (97.7)	49 (86.0)	226 (89.7)
5.	Are you indulged into the habits of smoking form/smokeless form of tobacco?	Positive	39 (81.3)	38 (71.7)	33 (64.7)	31 (72.1)	45 (78.9)	186 (73.8)
		Negative	9 (18.8)	15 (28.3)	18 (35.3)	12 (27.9)	12 (21.1)	66 (26.2)
6.	Do you visit dentist regularly?	Positive	21 (43.8)	15 (28.3)	15 (29.4)	71 (6.3)	18 (31.6)	76 (30.2)
		Negative	27 (56.3)	28 (71.7)	36 (70.6)	36(83.7)	39 (68.4)	176 (69.8)
7.	Is there any driving force that drove you to visit a dentist?	Positive	16 (33.3)	16 (30.2)	13 (25.5)	2 (4.7)	14 (24.6)	61 (24.2)
		Negative	32 (66.7)	37 (69.8)	38 (74.5)	41 (95.3)	43 (75.4)	191 (75.8)

Table 4 showing distribution of knowledge, attitudes and practices among study subjects according to academic year. Figure 1 shows the graphical representation of the distribution of the subjects based on educational status. A significant difference was observed between students of various academic years for knowledge ($p \leq 0.001$) and behavior ($p \leq 0.001$).

Table 4 Distribution of subjects based on knowledge, attitude and practice according to the educational status

	1 st year (%)	2 nd year (%)	3 rd year (%)	4 th year (%)	Internship (%)	X2	P value
Knowledge							
Poor	3 (6.3)	1(1.9)	4(7.8)	11 (25.6)	7 (12.3)	31.50	<0.001*
Average	34 (70.8)	26 (49.1)	31 (60.8)	17 (39.5)	20 (35.1)		
Good	11 (22.9)	26 (49.1)	16 (31.4)	15 (34.9)	30 (52.6)		
Total	48(100)	53(100)	51(100)	43(100)	57(100)		
Attitude							
Poor	17 (35.4)	15 (28.3)	12 (23.5)	17 (39.5)	14 (24.6)	4.43	0.35
' Good	3 1 (64.6)	38(71.7)	39 (76.5)	26 (60.5)	43 (75.4)		
Total	48(100)	53 (100)	51(100)	43(100)	57(100)		
Behavior							
Poor	20 (41.7)	35 (66.0)	35 (68.6)	34 (79.1)	37 (64.9)	15.19	<0.001*
Good	28 (58.3)	18 (34.0)	16 (31.4)	9(20.9)	20 (35.1)		
Total	48(100)	53(100)	51(100)	43(100)	57(100)		

Figures in parentheses are percentages; * Significant ($p < 0.05$)

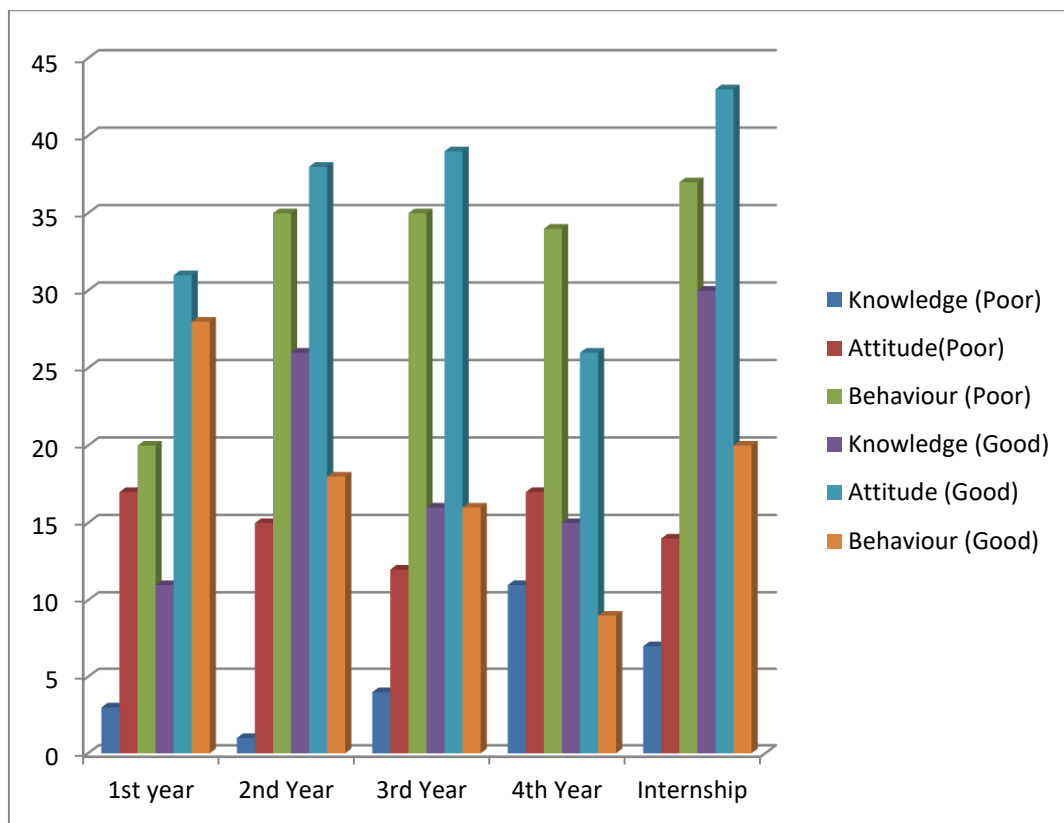


Figure 1 Distribution of subjects based on knowledge, attitude and practice according to the educational status

4. DISCUSSION

The present cross sectional survey was conducted among 252 medical students. Most of the students were having satisfactory knowledge for questions like "Number of permanent teeth do we have?" and "the reasons for development of oral cancer?" while for all the other questions, relatively lesser students answered correctly. Most of the students didn't know about right time to replace brush and effect of fluoride on dentition. For questions like "Methods to prevent bleeding from gums?" and "Methods to prevent tooth decay?" lesser percentage of students answered correctly. This indicates that medical students are not properly exposed to preventive aspects of dentistry and lack basic knowledge to prevent oral diseases. Our findings are in agreement with study done by Mouradian et al., (2005) who found that medical curriculum lack oral health content. The present cross sectional survey reveals that the oral health knowledge is significantly better among students of higher academic years as compared to students in lower academic years.

Our study results are in agreement with those of Sharda & Shetty, (2008) and Rong et al., (2006) where final year students were having better oral health knowledge than first year. Most of the students felt that tobacco habits are bad and management of tooth ache is equally important as other body parts. Though, it indicates positive attitude among the participants for oral health, no significant difference observed between attitudes of students in all academic years. The findings of the present study are in agreement with those of Rong et al., (2006) who observed that there are no differences in attitudes of first and final year medical students towards oral health. Majority participants reported a negative behavior towards oral hygiene maintenance.

A lower percentage of students brushed twice or more, few used other oral hygiene aids and only nearly half used fluoridated toothpaste. These results are in agreement with those reported by Usman et al., (2007) who found similar behavior among medical students. In the present survey, lower number of individuals routinely visited dentist while others visited only during any dental problem or do not visited at all. Our study findings are in agreement with those of Kawas et al., (2010) in which medical students were not worried about visiting the dentist regularly and used to see the dentist until they have toothache.

Higher percentage of students did not reported of habits like pan chewing, tobacco chewing or tobacco smoking. First year students were having significantly better ($p < 0.05$) behavior than others this finding is in agreement with the study reports of Vakeilliu et al., (2002) whose study results revealed positive behavior among first year students for tobacco and smoking habits.

5. CONCLUSION

Oral health knowledge of higher academic years was significantly better than first year students. Significantly high proportion of first year students were having positive attitude than other academic years.

Recommendations

Oral health education and basic knowledge of preventive dentistry must be integrated into the medical curriculum. Medical professionals must be encouraged to promote oral health awareness among their family, patients and in the society.

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Ethical approval

The study was approved by the Medical Ethics Committee of VSPM Dental College & research Centre, Nagpur, Maharashtra, India (Ethical approval code of IEC/VSPMDCRC/86/2020).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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